

## **HARD CARBON FILMS FORMED FROM PLASMA TREATED POLYMER SURFACES**

### **ABSTRACT**

Hard-carbon films with unique structures, methods for producing the films, and articles coated by the films are provided. These hard-carbon films are synthesized by the plasma surface treatment of a polymer substrate or a polymer-coated substrate in a plasma containing  $\text{SF}_x$  species, where  $x$  is less than 6, and may be produced under room temperature, low pressure environments.